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AGRONOMY HANDBOOK

for North Carolina

For Use of AAA Committeemen

The agronomy material herein was prepared for the guidance of employees of the North Carolina Extension Service.

AAA practices for 1945—inside front and back covers.

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**WAR FOOD ADMINISTRATION
AGRICULTURAL ADJUSTMENT AGENCY
March 1945**

MAR 12 1946

1945 AGRICULTURAL CONSERVATION PROGRAM FOR NORTH CAROLINA

A practice allowance is determined for each farm in the State. The allowance is the sum of the acreage of cropland times 80 cents and the acreage of fenced, noncrop, open pasture times 70 cents. This allowance represents the payment which may be earned for carrying out regular conservation practices. Conservation materials and services not in excess of the value of the practice allowance may be furnished by the AAA in lieu of cash payments.

Listed below are the approved conservation practices which producers may carry out on the farm during the 1945 program year (January 1 through December 31) and receive payments. To qualify for payment, each practice must be performed in accordance with approved specifications for the practices, and in the case of practices 11, 12, 13, 14, 15, 17, 18, and 22, prior approval of the county AAA committee must be obtained.

Specifications for each practice may be obtained at the county AAA office. The practices are divided into two groups—"Regular" and "Unlimited." Regular practices are those for which payment for performance is limited to the farm practice allowance. Unlimited practices are those for which payments are not limited by the farm practice allowance.

REGULAR PRACTICES

1. **Lime.**—Application of liming materials to farm land—payment not more than 80 percent of average cost delivered to farms.

2. **Phosphate.**—Application of phosphate materials, including basic slag and phosphate content in mixed fertilizer, to eligible grasses and legumes—payment not more than 80 percent of average cost delivered to farms.

3. **Potash.**—Application of potash materials, including potash content in mixed fertilizer, to eligible grasses and legumes—payment \$1.70 per 100 lbs. of 50 percent muriate of potash, or its equivalent.

4. **Boron.**—80 cents per acre for applying borax to alfalfa (20 to 35 pounds per acre) or commercial vegetable land (Experiment Station recommendations).

(Continued on inside of back cover)

ARGONOMY HANDBOOK FOR NORTH CAROLINA

VARIETIES, SEEDING RATES, PLANTING DATES, AND FERTILIZERS

In the recommendations concerning use of nitrogen fertilizer, the following equivalents are applicable:

- 100 lb. nitrate of soda supplies 16 lb. nitrogen.
- 100 lb. sulfate of ammonia supplies 20.5 lb. nitrogen.
- 100 lb. ANL supplies 20.5 lb. nitrogen.
- 100 lb. Cal-nitro supplies 20.5 lb. nitrogen.
- 100 lb. ammonium nitrate supplies 32.5 lb. nitrogen.

ALFALFA: Perennial—60 lb. per bu.

Varieties: Common variety from Kans., Utah, and Okla.; also Grimm for Mountains.

Seeding: 20 to 25 lb. per acre.

C. P.¹—Sept. 1–20.

Pied.²—Aug. 20–Sept. 15; Mar. 1–25.

Mts.³—Aug. 1–30; Apr. 1–30.

Soils: Deep, fertile, moderately heavy drained.

Fertilizer: 700 lb. 2–12–12 and 20 to 35 lb. borax at planting; 400 lb. 0–12–12 annually; borax and 100 lb. muriate of potash where needed.

Lime: Very high requirement.

Inoculation: Necessary.

Life of Seed: About 8 years.

Seeds per pound: 220,000 average.

Harvesting: Early bloom, one-fourth of flowers open.

Seed: Harvest second or third cutting.

Precautions: Allow 8 in. growth before frost.

ALSIKE CLOVER: Perennial—60 lb. per bu.

Seeding: 6–10 lb. per acre; 6–15 in C. P.

C. P.—Sept. 15–Oct. 15.

Pied.—Mar. 15–Apr. 25.

Mts.—Mar. 1–Apr. 15.

Soils: Rich, drained lowland preferred.

Fertilizer: 300 lb. 0–12–12 or 0–14–7.

Lime: High requirement.

Inoculation: Necessary.

Life of seed: About 2 years.

Seeds per pound: 700,000 average.

ALYCE CLOVER: Annual—About 60 lb. per bu.

Makes growth at same time as lespedeza, but is not as satisfactory.

¹ Coastal Plain.

² Piedmont.

³ Mountains.

Seeding: 10 lb. per acre, hulled and scarified.
Soils: Well-drained sandy loams.
Lime: Moderate requirement.
Inoculation: Apparently not necessary.
Life of seed: 2 years. New seed advised.

AUSTRIAN WINTER PEAS: Annual—60 lb. per bu.

Seeding: 25 lb. drilled; 30 lb. broadcast.
C. P. and Pied.—Sept. 1–30.
Mts.—July 25–Sept. 15.
Soils: Sandy loams to loams. Readily attacked by nematodes.
Fertilizer: 200 lbs. 0–12–12 or 0–14–7.
Lime: Will not tolerate excess acidity.
Inoculation: Imperative when not in soil.
Life of seed: About 3 years.
Seeds per pound: 4,800 average.

BARLEY (Grain): Annual—48 lb. per bu. See also Temporary Grazing Schedule.

Varieties: Sunrise, Davidson, Randolph, and Iredell for all areas.
Seeding: 2 bu. per acre; 3 bu. for grazing.
C. P.—Oct. 10–30.
Pied.—Oct. 1–20.
Mts.—Sept. 20–Oct. 10.
Soils: Medium to fertile, moderately heavy.
Fertilizer: See under Wheat.
Top dressing: 16–32 lb. N⁴; Feb. 15–Mar. 15.
Lime: Moderate acidity (5.6–6.5).
Life of seed: About 3 years.
Seeds per pounds: 13,000 average.

BERMUDA GRASS: (wire grass) Perennial. Easily established but difficult to eradicate. Makes a good pasture when grown with lespedeza or white clover.

Varieties: Coastal (Improved) and Common.
Seeding: Rootstocks usually used.
Fertilizer: See under Pastures.
Soils: Drained soils of C. P. and Pied.
Lime: Tolerates medium acidity (5–5.5).

BLUE GRASS: Perennial—14 lb. per bu. Produces most of growth in fall and spring.

Variety: Kentucky.
Seeding: See also Pastures. (Fall preferred.)
C. P.—Sept. 15–Oct. 15 or Feb. 15–Mar. 15.
Pied.—Sept. 1–Oct. 1 or Mar. 1–Apr. 1.
Mts.—Aug. 15–Sept. 15 or Mar. 15–Apr. 15.
Soils: Fertility level must be high.
Fertilizer: See Pastures.

⁴ Nitrogen.

Lime: High requirement.

Life of seed: 2 years.

Seeds per pound: 2,200,000 average.

BUCKWHEAT: Annual—48 lb. per bu.

Varieties: Japanese, Silverhull, Common Gray.

Seeding: $\frac{3}{4}$ to $1\frac{1}{4}$ bu. per acre.

Mts.—May 20–July 15.

Soils: Well-drained. Cool, moist climate.

Fertilizer: 200 to 300 lb. 2–12–6.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: About 2 years.

BUR-CLOVER: 50 lb. per bu. hulled; 10 lb. per bu. unhulled.

Seeding: 8 lb. per acre.

C. P.—Sept. 15–Oct. 15.

Pied.—Sept. 1–Oct. 1.

Mts.—Aug. 15–Sept. 15.

Soils: Wide range of adaptation.

Fertilizer: 300 lb. 0–12–12 or 0–14–7.

Lime: Tolerates acid; responds to lime.

Inoculation: Not necessary when planted unhulled.

Life of seed: About 5 years.

Seeds per pound: 209,000 average.

CARPET GRASS: Perennial—18 to 36 lb. per bu.

Not desirable where Dallis or Bermuda will grow. Fertilize, disk and seed lespedeza on existing stands. White clover, bur and hop clovers also useful.

Soils: Moist, low fertility soils.

Fertilizer: 300 lb. 0–14–7 at 2-year intervals.

Lime: Tolerates medium acidity (5–5.5).

Seeds per pound: 1,350,000 average.

CORN: Annual—56 lb. per bu.

Varieties: Adapted local varieties and following:

C. P.—White—Biggs Two Ear, Lathams Double; Highland Horsetooth on muck.

Yellow—Jarvis Golden Prolific, Indian Chief, Lathams Yellow Cross.

Pied.—White—Weeklys Improved, Southern Beauty, Douthits Prolific, Cockes Prolific.

Yellow—Jarvis Golden Prolific, Indian Chief.

Mts.—White—Holcombes Prolific. **Yellow—**Jarvis Golden Prolific.

Seeding: 8 to 15 lb. per acre or 4 to 7 qt.

C. P.—Mar. 25–June 1.

Pied.—Apr. 1–June 1.

Mts.—May 1–June 1.

Soils: Bottom lands, loams, and clay loams; moisture retentive; high to medium fertility.

Fertilizer: 300 lb. 5–7–5.

Side dressing: 20 to 80 lb. N.

Lime: Lime legumes grown in rotation.

Life of seed: About 2 years.

Seeds per pound: 1,200 average.

CORN (silage): See also Corn.

Varieties: Hunberrier, Eureka, and Pamunkey.

COTTON: Annual in N. C.—30 lb. per bu.

Varieties: Coker 100, Coker 200, Deltapine, White Gold, Stoneville and Mexican. **Wilt**

Resistant—Coker 100 Wilt, Coker 4 in 1, and Stonewilt. $1\frac{1}{8}$ to $1\frac{1}{4}$ in.—Coker-Wilds.

Seeding: 30 to 45 lb. per acre.

C. P.—Apr. 15–May 15.

Pied.—Apr. 25–May 20.

Soils: Drained, moderately heavy sandy loams.

Fertilizer:

	C. P.	Pied.
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Average----	500 lb., 5-10-5	600 lb., 4-12-4
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Low potash--	500 lb., 3-9-12	600 lb., 3-9-12
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Fertile soils--	500 lb., 3-9-9	600 lb., 3-12-6
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Side-dressing: 16 lb. N., 75 lb. muriate of potash if needed.

Lime: Dolomitic for legumes in rotation.

Life of seed: About 5 years.

Seeds per pound: 4,000 average.

COWPEAS: Annual—60 lb. per bu.

Varieties: C. P. and Pied—Brabham, Iron, Clay, Whippoorwill, Black, etc. Mountains—Whippoorwill, Clay, Black, etc.

Seeding: $\frac{1}{2}$ bu. in rows; 1 bu. broadcast.

C. P. and Pied.—May 1–July 15.

Mts.—May 10–June 15.

Soils: Wide range.

Fertilizer: See under Soybeans.

Lime: Tolerates medium acidity (5–5.5).

Inoculation: Not necessary.

Life of seed: 2 years; control weevil.

Seeds per pound: 2,000 average.

CRIMSON CLOVER: Annual—60 lb. per bu.

Varieties: Southern-grown seed.

Seeding: 20 lb. drilled; 25 lb. broadcast.

C. P. and Pied.—Sept. 1–30.

Mts.—July 25–Sept. 15.

Soils: Medium to heavy, well-drained.

Fertilizer: 200 lb. 0-12-12 or 0-14-7.

Lime: Will not tolerate excess acidity.

Inoculation: Imperative when not in soil.

Life of seed: About 2 years.

Seeds per pound: 150,000 average.

CREEPING BENTGRASS: Related to redtop.
Used for lawns and golf greens.

CROTALARIA: Annual—60 lb. per bu. Green-manure crop for soil improvement.

Varieties: C. P. and Pied.—*Striata* and Late or Carolina *spectabilis*.

Seeding: 10 lb.; 15 lb. for *spectabilis*.

C. P. and Pied.—Apr. 1–May 15.

Soils: Sandy, low fertility.

Fertilizer: 200 lb. 0–12–12 or 0–14–7.

Lime: Tolerates medium acidity (5–5.5).

Inoculation: Not necessary.

Life of seed: About 7 years.

Seeds per pound: 30,000 average for *spectabilis*.

DALLIS GRASS: Perennial—15 lb. per bu. A perennial bunch type; one of earliest summer grasses; fairly resistant to drought; withstands reasonably close grazing; grows well with lespedeza and white clover; may winter-kill in mountains.

Seeding: 12–15 lb.; see also Pastures.

C. P.—Feb. and Mar.

Pied.—Mar. 1–31.

Soils: Heavier soils, responds to fertility.

Fertilizer: See under Pastures.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: About 7 years.

Seeds per pound: 340,000 average.

FESCUE: Perennial—24 lb. per bu. Tufted, long-lived deep-rooted grass.

Varieties: Meadow; Red for lawns only.

Seeding: 25 lb. broadcast; less in mixtures. Plant in early fall or spring.

Soils: All except sandy types.

Fertilizer: Mixtures—400 lb. 0–14–7.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: 1 to 2 years.

HOP CLOVER (YELLOW HOP): Annual. Makes earlier spring growth than lespedeza.

Seeding: Broadcast 2 lb. per acre on pastures.

Soils: Grows on most soils.

Fertilizer: 200 lb. 0–12–12 or 0–14–7.

Lime: Requires more than lespedeza.

Inoculation: Not necessary.

HUBAM CLOVER: 60 lb. per bu. An annual white sweetclover. A biennial is preferred. See Sweetclover.

JOHNSON GRASS: Perennial—Illegal to sell seed. Not recommended because of spreading and difficulty in eradication. Utilize existing stands but prevent spreading seed. See also Weed Control,

Soils: Heavy, fertile soils.
Lime: Tolerates medium acidity.

KUDZU: Perennial.

Planting: 500 2- or 3-year-old crowns. Dig holes 18 in. square, 15 in. deep. Plant on 20-foot squares on gullied land.

Soils: Gullies and waste land.

Fertilizer: 200 to 400 lb. 0-18-0 or 0-20-0 at 3-year intervals; low fertility 250 to 500 lb. 0-14-7.

Lime: Tolerates medium acidity.

Inoculation: Not necessary.

LADINO CLOVER: Perennial. Giant species of white clover. Produces more grazing than white clover; will not stand as close grazing. See also White Clover.

LESPEDEZA: Annual—25 to 45 lb. per bu.

Varieties: C. P.—Kobe; Pied. and Mts.—Korean and Kobe. Also Common for pastures.

Seeding: 20 to 40 lb.

C. P.—Feb. 1–Mar. 15.

Pied.—Feb. 1–Apr. 1.

Mts.—Mar. 15–Apr. 15.

Soils: Rich or red soils for Korean; C. P. for Kobe.

Fertilizer: 200 lb. 0-12-12 or 0-14-7. 75 lb. muriate of potash if needed.

Lime: Low requirement; responds to lime.

Inoculation: Not usually necessary.

Life of seed: About 3 years.

Seeds per pound: Korean 240,000; Kobe 185,000; Common 343,000; Sericea 335,000.

LESPEDEZA SERICEA: Perennial—30 to 34 lb. per bu. unhulled; 60 lb. per bu. scarified. Used for erosion control, soil improvement, and as a forage crop.

Seeding: 30 to 40 lb. unhulled; 15 to 20 lb. scarified. Broadcast late fall or early spring unhulled; Mar. and Apr. when scarified.

Soils: Most soils. Does best on fertile loams.

Inoculation: Crosses with annual lespedeza.

Fertilizer: 200 lb. 0-12-12 or 0-14-7.

Lime: Low requirement.

Hay: Cut when 12 inches; 3 to 4 times per year.

MAMMOTH RED CLOVER: A variety of red clover sometimes called Sapling, Big English, and Bull; matures 2 weeks earlier; is larger and coarser than ordinary red clover; only one crop each season.

MILLET: Annual—50 lb. per bu.

Varieties: Pearl, Foxtail, Japanese.

Seeding: 20 lb. drilled; 30 to 40 lb. broadcast.

C. P.—May 1–July 15.

Pied.—May 10–July 15.

Mts.—May 20–July 1.

Soils: Most drained moderately heavy soils.

Fertilizer: 200 lb. 6–8–6; 5–10–5 Pied. and Mts.

Lime: Tolerates medium acidity (5–5.5).

Top-dressing: For grazing 16 to 30 lb. N.

Life of seed: About 4 years.

Seeds per pound: 220,000 average.

OATS (grain): Annual—32 lb. per bu.

Varieties: C. P.—Fulgrain, Stanton, Letoria, and Victorgrain. Pied.—Letoria, Fulgrain, Stanton, Lee, Victorgrain and Lelina. Mts.—Letoria and Fulwin.

Seeding: 2 bu. in fall; 3 bu. in spring.

C. P.—Oct. 10–20.

Pied.—Oct. 1–25.

Mts.—Sept. 20–Oct. 10 or Mar. 15–Apr. 15.

Soils: Loams and sandy loams.

Fertilizer and top dressing: See under Wheat.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: About 3 years.

Seeds per pound: 12,700 average.

OATS (Grazing): See also Oats (grain) and Temporary Grazing Schedule.

Varieties: C. P.—Fulgrain and Victorgrain; Pied.—Lelina, Letoria, Lee, Stanton, and Victorgrain; Mts.—Letoria and Fulwin.

Seeding: 3 bu. drilled; 4.5 bu. broadcast.

ORCHARD GRASS: Perennial—14 lb. per bu.
Erect bunch type, growing early and late in season. Particularly valuable in early stages, if establishing a pasture.

Seeding: See also under Pastures.

C. P.—Mar. 1–31 and Sept. 1–30.

Pied.—Mar. 1–31 and Sept. 1–30.

Mts.—Mar. 15–Apr. 15 and Aug. 15–Sept. 15.

Soils: Drained, moderately heavy types.

Fertilizer: See under Pastures.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: About 2 years.

Seeds per pound: 600,000 average.

PASTURES:

Mixtures: C. P.—10 lb. Dallis and 15 lb. lespedeza; Pied. and Mts.—Lepedeza on poor soils.

Medium to good soils—5 lb. bluegrass, 5 lb. redtop, 5 lb. orchard grass, 1–2 lb. white clover, 15 lb. lespedeza.

Poorer soils—6 lb. redtop, 6 lb. orchard grass,
15 lb. lespedeza.

Pied.—Add 3 lb. Dallis to both mixtures.

Seeding: Dallis and lespedeza sown in spring
only.

C. P.—Sept. 15–Oct. 15 or Feb. 15–Mar. 15.

Pied.—Sept. 1–30 or Mar. 1–31.

Mts.—Aug. 15–Sept. 15 or Mar. 15–Apr. 15.

Fertilizer: At seeding 400 to 600 lb. 0–14–7; at 2-
year intervals, 200 to 300 lb. 0–18–0 or
0–20–0 on good soils or 300 to 400 lb.
0–14–7 or 0–12–12 on poor soils.

Lime: Necessary for growth of legumes.

PEANUTS: Annual—22 lb. Virginia type or 30 lb.
Spanish type per bu.

Varieties: C. P.—Virginia, Spanish, and Im-
proved White Spanish. Pied. and Mts.—
Valencia.

Seeding: 45 lb. Virginia (shelled); 35 lb. Spanish
and Valencia (shelled).

Soils: Drained sandy loams.

Lime: High requirement particularly for Vir-
ginia type. 400 lb. land plaster or burned
lime on foliage of Virginia when calcium
needed.

Fertilizer: Virginia—Fertilize other crops in
rotation; 50 to 75 lb. muriate of potash.

Inoculation: Advisable as cost is low.

Life of seed: About 1 year.

Seeds per pound: About 195 Virginia type; 365
Spanish.

RAPE: Annual—Use as a hog pasture.

Seeding: 3 lb. in rows; 8 lb. broadcast; less in
mixtures. Feb. 1–Mar. 31 or Aug. 1–Sept. 30.

Soils: Any good corn land.

Fertilizer: 300 lb. 4–10–6; 3–12–6 or 4–12–4.

Lime: Tolerates moderate acidity (5.5–6).

Inoculation: Not necessary.

Life of seed: About 6 years.

RED CLOVER: Biennial—60 lb. per bu.

Varieties: Hardy northern-grown seed produced
in N. C., Va., Tenn., Ind., and Ohio.

Seeding: 12 to 20 lb. per acre; 8 lb. on grain.

C. P.—Sept. 15–Oct. 15.

Pied.—Mar. 1–Apr. 15.

Mts.—Mar. 15–Apr. 15 or Aug. 1–31.

Soils: Limed, fertile, drained soils.

Fertilizer: C. P.—low potash, 250 lb. 0–12–12;
Pied. and Mts.—400 lb. 0–18–0 or 0–20–0 or
250 lb. 0–14–7.

Lime: High requirement.

Inoculation: Seldom necessary in Pied. and Mts.
Necessary in C. P.

REDTOP (Herds-grass): Perennial—14 lb. per bu. 30 to 38 lb. per bu. if cleaned. Tolerant of drought; makes most of growth before mid-summer; relatively low yields in relation to orchard or bluegrass; valuable in Pied. to control weeds in tobacco rotation.

Seeding: 10 to 15 lb.; also used in pasture mixtures.

C. P. and Pied.—Sept. and Mar.

Mts.—Aug. 15–Sept. 15. or Mar.

Soils: Most soils. Tolerates low fertility.

Fertilizer: See under Pastures.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: About 6 years.

Seeds per pound: 5,000,000 average.

RHODE ISLAND BENTGRASS: Related to redtop and yields less hay. Used in lawn mixtures.

RYE: Annual—56 lb. per bu. See also Temporary Grazing Schedule.

Varieties: Abruzzi.

Seeding: $\frac{3}{4}$ to $1\frac{1}{4}$ bu. grain; 2 grazing.

C. P.—Oct. 15–Nov. 15 for grain; Sept. 1–15 for grazing.

Pied. and Mts.—Oct. 20–Nov. 15 for grain; Aug. 20–31 for grazing.

Soils: All drained soils.

Fertilizer: See Wheat.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: About 2 years.

Seeds per pound: 180,000.

RYEGRASS: Annual, perennial and biennial. 24 lb. per bu. Used for grazing, winter cover, and lawns.

Varieties: Italian. Perennial not recommended. Domestic is usually a mixture.

Seeding: 20 to 40 lb. preceding tobacco; 15 lb. each when sown with crimson clover; 1 lb. per 1,000 sq. ft. on lawns.

C. P.—Sept. 1–30.

Mts.—July 10–Sept. 1.

Soils: Grows on most soil types.

Fertilizer: 400 lb. 6–8–6 for grazing.

Top dressing: 16 to 24 lb. N. for grazing.

Lime: Tolerates medium acidity (5–5.5).

Life of seed: About 2 years.

SORGHUM (grain): Annual—56 lb. per bu.

Varieties: C. P. and Pied.—Wheatland. See under sorghum (syrup) for other information.

SORGHUM (syrup): Annual—56 lb. per bu.

Varieties: C. P.—Honey, Sugar Drip, Orange, Texas Seeded Ribbon. Pied.—Honey, Sugar Drip, Orange. Mts.—Red Amber, Sugar Drip, Orange.

Seeding: 5 to 6 lb. per acre in rows.

C. P.—May 1–June 15.

Pied.—May 10–June 15.

—Mts.—May 15–June 15.

Soils: Fertile, drained suitable for corn.

Lime: Tolerates medium acidity (5–5.5).

Fertilizer: C. P.—400 lb. 5–7–5; Pied. and Mts. 400 lb. 4–12–4 or 3–12–6.

Life of seed: About 3 years.

SOYBEANS: Annual—60 lb. per bu.

Varieties: C. P.—Ogden, Volstate, Woods Yellow, Arksoy, Tokio; Pied. and Mts.—Ogden, Arksoy, Volstate, Woods Yellow and Tokio.

For grazing: Tokio, Biloxi, Ogden.

For Hay: C. P. and Pied.—Otootan, Laredo; Mts.—Virginia, Laredo.

Seeding: 30 to 55 lb. in rows; Grazing—1 bu. in rows; 2 bu. broadcast.

Soils: Heavy loam to clay loams. Tolerates imperfect drainage.

Fertilizer: C. P.—75 lb. muriate of potash sidedressed; 200 to 300 lb. 3–9–9 or 3–9–12 following small grain and late seedings; if no phosphate in rotation, 200 to 300 lb. 0–12–12; Pied.—200 to 300 lb. 0–12–12, 0–14–7, or 3–12–6.

Lime: Use dolomitic to get magnesium, usually 1,000 to 2,000 lb. per acre.

Life of seed: About 1 year.

Seeds per pound: 1,250 to 7,700.

SUDAN GRASS: Annual—32 lb. per bu. Use as supplementary grazing and hay.

Varieties: Tift where available.

Seeding: 5 to 8 lb. in rows; 30 to 40 lb. drilled.

C. P.—May 1–31

Pied.—May 10–31.

Mts.—May 20–31.

Soils: Most drained soils except sands.

Fertilizer: 200 to 400 lb. 5–7–5; Pied. and Mts. 5–10–5.

Top-dressing: Grazing, 16 to 32 lb. N.

Lime: Tolerates medium acidity (5–5.5).

Seeds per pounds: 50,000.

SWEETCLOVER: Biennial—60 lb. per bu. hulled; 32 lb. per bu. unhulled. Closely related to alfalfa and thrives with less attention.

Seeding: 10 to 12 lb. hulled seed per acre.

C. P.—Sept. 15–Oct. 15.

Pied.—Mar. 1–Apr. 15.

Mts.—Mar. 15–Apr. 15.

Soils: Heavier, drained types.

Fertilizer: 700 lb. 2–12–12.

Lime: High requirement (6–6.8).

Inoculation: Necessary if not in soil.

TOBACCO (Plant beds):

Seeding: 1 lb. recleaned seed per 100 sq. yd.

This is normally sufficient for 2 acres.

Soils: Rich, drained, sandy loams that do not bake after heavy rains.

Fertilizer: 1½ lb. 4–9–3 per sq. yd.

Lime: Desirable on new acid land.

Weed control: 1 lb. cyanamid or bramon per sq. yd. 90 days before seeding.

TOBACCO (Burley): Annual—

Varieties: Strain No. 5, Judy's Pride, Kelly, and Hallies Special.

Planting: 5,000 plants per acre.

Soil: Fertile loams, 2nd and 1st bottom land.

Lime: Tolerates moderate acidity (5.5–6).

TOBACCO (Flue-cured): Annual—

Varieties: Know origin and adapt to local conditions. Fertile soils—400, 401, Cash, Jamaica, Gold Dollar, and Bonanza. Light soils—400, 401, White Stem Orinoco, and Virginia Bright Leaf.

Planting: 5,000 plants per acre.

C. P.—April. 20–May 20.

Pied.—May 1–June 1.

Soils: Drained sandy loams.

Fertilizer: 800 to 1,200 lb. 3–9–6 or 3–9–9; 2–10–6 on fertile soils or following legumes.

Lime: Tolerates moderate acidity (5.5–6).

VELVETBEANS: Annual—60 lb. per bu.

Varieties: C. P.—Early, Speckle, Osceola, Bunch.

Pied.—Early and Speckle.

Seeding: 20 to 30 lb. in rows; 1 bu. broadcast; 10 to 15 lb. interplanted with corn.

C. P.—Apr. 25–June 1.

Pied.—May 1–31.

Mts.—May 10–31.

Soils: Light and sandy C. P. and Pied.

Fertilizer: See Soybeans.

Inoculation: Not necessary.

Seeds per pounds: 960 average.

VETCH: Annual—60 lb. per bu.

Varieties: Hairy; common for grazing.

Seeding: 2 lb. drilled; 25 lb. broadcast.

C. P. and Pied.—Sept. 1–30.

Mts.—July 10–Sept. 1.

Soils: All drained soils. Most satisfactory winter legume on sandy and poor soils.

Lime: Will not tolerate excess acidity.

Life of seed: About 3 years.

Seeds per pounds: Hairy, 20,800; common, 6,850.

WIRE GRASS: See under Bermuda Grass.

WHEAT: Annual—60 lb. per bu. See also Temporary Grazing Schedule.

Varieties: Carala, Redhart, Hardired, Fulcaster, and Thorne.

Seeding: 1 to 1½ bu.; 2 to 3 bu. for grazing.

C. P.—Nov. 1–10.

Pied.—Oct. 10–31.

Mts.—Sept. 20–Oct. 10.

Soils: Heavy loams and clay loams.

Fertilizer: 300 lb. at seeding.

Condition	C. P.	Pied. and Mts.
Average.....	{ 4-10-6 4-8-8	4-12-4 3-12-6
Legumes turned..	0-12-12	0-14-7
Grazing.....	6-8-6	5-10-5
Fertile soils.....	Not usually necessary	

Top dressing: 16 to 32 lb. N. Feb. 15–Mar. 15.

Lime: Medium to moderate acidity (5–6).

Life of seed: About 2 years.

Seeds per pound: 16,000 average.

WHITE CLOVER: Perennial—60 lb. per bu.

Gives spring and early summer growth; spreads by seeds and runners; stands heavy grazing but is not always dependable.

Seeding: 1 to 2 lb. on fertile pastures.

C. P.—Feb. 15–Mar. 15; Sept. 15–Oct. 15.

Pied.—Mar. 1–31; Sept. 1–30.

Mts.—Mar. 15–Apr. 15; Aug. 15–Sept. 15.

Soils: Moderately fertile, drained.

Fertilizer: See under Pastures.

Lime: Necessary for good growth.

Inoculation: Necessary unless present.

Life of seed: About 2 years.

Seeds per pound: 700,000 average.

Table 1.—PLANT REMOVAL OF FERTILIZER MATERIALS

(Approximate—Varies with Soil Fertility)

Crop	Yield	Use	N Lb.	P ₂ O ₅ Lb.	K ₂ O Lb.
Alfalfa	3 tons	hay	143	32	134
Bermuda grass	1 ton	grazed	10	3	15
Bur-clover	1 ton	hay	59	21	72
Cereals (av.)	1 ton	hay	10	30	3
Corn	50 bu.	grain	47	20	11
	2 tons	stover	36	16	46
	500 lb.	lint	1.4	0.5	3
Cotton	1,000 lb.	seed	36	15	15
	1,500 lb.	plants	38	15	27
Crimson clover	1 ton	hay	45	12	45
Grains (av.)	100 lb.	grain	3	0.9	0.9
Grasses (av.)	1 ton	hay	9	36	3
Leaves, forest	1 ton	leaves	15	5	8
Lespedeza	2 tons	hay	77	41	41
Legumes (av.)	1 ton	hay	47	11	39
Millet	2 tons	hay	53	14	86
Oats	50 bu.	grain	32	13	9
	1 ton	straw	12	4	30
Peanuts	1 ton	nuts	60	14	20
	1 ton	vines	39	5	41
Potatoes, Irish	200 bu.	tubers	43	17	77
		tops	60	10	55
Potatoes, sweet	200 bu.	roots	30	10	50
	1 ton	vines	40	11	33
Rye	20 bu.	grain	21	8	6
	1 ton	straw	10	6	16
Sorghum	40 bu.	grain	33	20	7
	2 tons	fodder	41	13	63
Soybeans	20 bu.	seed	70	16	30
	1 ton	hay	51	14	47
Timothy	1 ton	hay	20	6	27
Tobacco	1,000 lb.	leaves	40	5	60
	1,000 lb.	stalks	37	6	45
Velvetbeans	1 ton	hay	52	11	53
Vetch and oats	2 tons	hay	34	12	25
Wheat	30 bu.	grain	34	15	9
	1 ton	straw	10	3	15

Table 2.—HOME MIXING OF FERTILIZERS

Common materials	Analyses	Pounds of each material required in each ton to give analyses desired											
		1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%
Nitrate of soda.....	16-0-0.....	125	250	375	500	625	750	875	1,000	1,125	1,250	1,500	1,750
Sulfate of ammonia ¹	20.5-0-0.....	98	195	292	390	488	585	684	780	878	976	1,170	1,366
Ammonium nitrate.....	32.5-0-0.....	62	123	184	246	308	369	431	492	554	615	739	861
Cottonseed meal.....	6-2.5-1.5.....	334	667	1,000	1,334	1,667	2,000	---	---	---	---	---	---
Superphosphate.....	0-18-0.....	112	223	334	445	556	667	778	889	1,000	1,120	1,334	1,555
Superphosphate.....	0-20-0.....	100	200	300	400	500	600	700	800	900	1,000	1,200	1,400
Triple superphosphate.....	0-44-0.....	46	91	137	182	228	273	319	364	410	455	546	637
Muriate of potash ²	0-0-50.....	40	80	120	160	200	240	280	320	360	400	480	560
Muriate of potash.....	0-0-60.....	34	67	100	134	167	200	234	267	300	334	400	467
Sulfate of potash.....	0-0-48.....	42	84	125	167	209	250	292	334	375	417	500	584
Sulfate of potash-magnesia.....	0-0-22.....	91	182	273	364	455	546	637	728	819	910	1,092	1,274

Table 3.—A FEW SUGGESTED GRADES FOR HOME MIXING

	Pounds of each material required in each ton to give analyses desired											
	Tobacco						General crop					
	3-9-6	3-9-9	3-9-12	2-10-6	2-10-9	2-10-12	4-8-6	6-8-6	8-8-6	10-8-6	12-8-6	14-8-6
Cottonseed meal.....	351	351	351	234	66	84	351	351	351	351	351	351
Sulfate of ammonia ¹	98	98	98	66	84	100	293	293	293	293	293	293
Nitrate of soda.....	125	125	125	84	100	125	250	250	250	250	250	250
Superphosphate.....	950	950	950	1,080	839	889	839	839	839	839	839	839
Muriate of potash ² 50% K ₂ O.....	70	70	70	70	70	70	232	232	232	232	232	232
Sulfate of potash.....	166	291	291	166	130	130	35	35	35	35	35	35
Dolomitic limestone.....	130	115	115	130	130	130	---	---	---	---	---	---
Filler.....	110	---	---	170	---	---	---	---	---	---	---	---

¹ Cal-nitro or ANL at same rate or ammonium nitrate at one-half this rate. ² Manure salts can be used at two times this rate except for tobacco.

FERTILIZER MATERIALS

[Approximate average analyses as to nitrogen (N)—phosphoric acid (P_2O_5)—potash (K_2O)]

- Ammonia liquor (21.4-0-0)—ammonia gas in water.
- Ammoniated superphosphate (4-14-0) (4-16-0), or (5-10-0)—superphosphate treated with ammonia liquor or anhydrous ammonia.
- Ammonium nitrate (32.5-0-0)— $\frac{1}{2}$ N as in nitrate of soda; $\frac{1}{2}$ as in sulfate of ammonia.
- Ammonium phosphate A (11-48-0)—mono ammonium phosphate; B (16.5-20-0)—ammonium phosphate and ammonium sulfate.
- Anhydrous ammonia (82-0-0)—ammonia gas compressed to liquid form.
- ANL (20.5-0-0). See Cal-nitro.
- Basic slag (0-9-0)—by-product of steel manufacture; liming value is $\frac{1}{4}$ to $\frac{1}{3}$ that of agricultural limestone.
- Blood, dried—9 to 14% N.
- Bone meal, raw (3.5-22-0) as total P_2O_5 .
- Bone meal, steamed (2-28-0) as total P_2O_5 .
- Borax—10% boron in granulated agricultural borax.
- Brimstone—trade name for sulfur.
- Calcium metaphosphate (0-63-0)—TVA material.
- Calcium nitrate (15.5-0-0).
- Calcium silicate slag—by-product of concentrated phosphates, liming equivalent about 80% of calcium limestone; furnished in granular (quenched) and ground forms.
- Calcium sulphate—gypsum or land plaster ($CaSO_4$).
- Cal-nitro (20.5-0-0)—mixture of ammonium nitrate and dolomitic limestone; contains 9% calcium oxide and 7% magnesium oxide.
- Castor pomace (6-1.5-0.5)—castor-bean meal.
- Cocoa shell meal (2.5-1-3)—ground shells.
- Colloidal phosphate (0-20-0) as total P_2O_5 .—by-product of hydraulic mining of rock phosphate.
- Copper sulfate—sometimes called bluestone.
- Cottonseed meal (5.7-2.5-1.5) or (6.6-2.5-1.5).
- Cyanamid (21-0-0)—pulverized and granulated forms; a basic nitrogen material.
- Dicalcium phosphates (0-40-0).
- Epsom salts (magnesium sulfate)—a source of water-soluble magnesium.
- Fish scrap (acidulated) (5.7-3-0)—treated with sulfuric acid to prevent decay.
- Fish scrap (dried) (9.5-6-0).

- Fused rock phosphate—30% total P_2O_5 ; TVA material.
- Garbage tankage (2.5-1.5-1)—rendered, dried, and ground waste household material.
- Gypsum (85% to 90% calcium sulfate)—land plaster used on peanuts.
- Kainit (0-20-0)—impure potash salts; contained magnesium as originally sold.
- Kieserite (33% MgO)—magnesium sulfate; a source of soluble magnesium.
- Land plaster—See Gypsum.
- Magnesium sulfate—a source of soluble magnesium. See Epsom salts.
- Manganese sulfate—a source of soluble manganese for over-limed soils.
- Manure (0.6-0.3-0.6) (wet basis)—60% to 80% water.
- Manure salts (0-0-30)—impure potash salts containing sodium chloride (table salt).
- Milorganite (6-2.2-0)—trade name for activated sludge.
- Muriate of potash (0-0-50) or (0-0-60).
- Nitrate of soda (16-0-0)—a common top-dressing material.
- Peanut meal (7.2-1.5-1.2)—peanuts with oil extracted.
- Peanut-hull meal (1.2-0.5-0.8)—ground hulls.
- Peat (2.7-0-0)—a high organic matter soil.
- Peruvian guano (12-12.5-2.5)—decomposed bodies and droppings of birds.
- Phosphate rock (0-33-0.1)—as total P_2O_5 .
- Potassium metaphosphate (0-58-35)—TVA material.
- Potassium-calcium metaphosphate (0-54-35)—TVA material.
- Precipitated phosphate (0-32-0)—dicalcium phosphate; acid solution of phosphate rock or processed bone neutralized with lime.
- Processed tankage—inert nitrogenous materials made more available by steam under pressure; sometimes acids are also used.
- Soybean meal (7-1.2-1.5)—soybeans with the oil removed.
- Sulfate of ammonia (20.5-0-0)—used as a top dressing material.
- Sulfate of potash (0-0-48)—potash top dressing where chlorine is injurious to tobacco.
- Sulfate of potash-magnesia (0-0-22)—contains 11% magnesia (MgO); a source of soluble magnesium as well as potash.
- Superphosphate (0-18-0) to (0-20-0)—rock phosphate treated with sulfuric acid; contains around 50% gypsum ($CaSO_4$). (See triple superphosphate).

Tankage (7-10-0)—phosphate as total P_2O_5 ; dried, ground animal remains.
 Tobacco stems (1.5-0.5-5.)—ground tobacco stems.
 Triple superphosphate (0-44-0)—superphosphate with gypsum ($CaSO_4$) removed.
 Uramon (42-0-0)—trade name for urea.
 Whale guano (8.5-6-0)—dried, ground residue after oil is removed from whales.

HOW TO PREPARE A COMPOST HEAP

1. Use straw, leaves, and crop residues.
2. Build pen with logs, slabs or boards; or build pile with perpendicular sides.
3. Lime, phosphate and nitrogen are needed.
 - A. Mix 65 lb. ammonium sulphate, 25 lb. superphosphate, 55 lb. ground dolomitic limestone, and 25 lb. muriate of potash. This is enough for 1 ton of dry material.
 - B. Satisfactory results can be obtained by using 1 part of 5-7-5 or 5-10-5 and 1 part of finely ground dolomitic limestone. Use 100 lb. of this mixture per ton of dry compost.
4. Pack in layers 1 ft. deep. Spread the fertilizer over the surface. Use a few shovelfuls of animal manure for rapid decomposition. Wet down the pile with water. Continue until the pile is 6 feet high. Keep the sides straight and the center lower than the edges. Do not add enough water to wash out the soluble fertilizer. One ton of dry material will produce about 3 tons of manure in 3 to 6 months. Keeping the pile wet will increase decomposition.

Table 4.—LIMING MATERIALS

Common names	Neutralizing equivalent ¹	Approximate analyses
Agricultural or ground dolomitic limestone ² .	95-108	52% $CaCO_3$ and 42% $MgCO_3$
Ground limestone ² , air slacked lime, or precipitated lime.	85-100	80-95% $CaCO_3$
Lump lime, builders lime or caustic lime.	150-175	85% CaO
Hydrated lime or water slacked lime.	120-135	65% CaO
Burned oyster shells-----	90-110	55% CaO ; 5% MgO
Ground oyster shells-----	80-90	85% $CaCO_3$
Marl-----	50-90	60% $CaCO_3$
Basic slag 8-10% P_2O_5 -----	25-35	46% CaO ; 6% MgO
Wood ashes-----	40-50	45% $CaCO_3$
Land plaster-----	None	70-75% $CaSO_4$

¹ Neutralizing equivalent given as percent in comparison to $CaCO_3$ as 100.

² Fineness of grinding is important. For practical purposes a limestone ground so that 65 percent to 80 percent passes a 48-mesh screen is satisfactory providing the 100 mesh and finer materials have not been removed.

WEED CONTROL

[Numbers used refer to methods of control below]

- Bermuda grass⁵—7 and 13.
Birdweed (chickweed)—3, 12, 14C, or 14D.
Broom sedge⁵—Cut in late July or early Aug.—
5 and 3.
Bitterweed—5, 6, and 12.
Buckhorn (plantain)—1, 12, and 3.
Bull thistle—cut below crown before seed set.
Canada thistle—14A or chop June to Sept.
Chess (cheat)—1 and 6. Separate from wheat by
floating off in water; sow spring oats.
Chickweed—3, 14C or 14D.
Cockle—12 and 3.
Cockleburrs—sow to grain and lespepeza for several
years.
Coco. See Nutgrass⁵.
Crabgrass—2 and 3.
Curled dock—13 and 3.
Dodder—1, 11, and 8.
Dogfennel (Mayweed)—6 and 12.
Field sorrel—5A and 12.
Johnson grass⁵—8, 6, 13, and 10. Mow frequently
or graze heavily.
Love vine (dodder)—1, 11, and 8.
Mayweed (dogfennel)—6 and 12.
Morning-glory—1 and 3.
Nutgrass⁵—3, 13, followed by 9, or fall plow and
plant to small grain.
Plantain—1, 12, and 3.
Ripple (plantain)—1, 12 and 3.
Sand spurs—3, 11 and 10.
Sheep sorrel—5A and 3.
Sour grass (sheep sorrel)—5A and 3.
Sourweed (sheep sorrel)—5A and 3.
Star weed (chickweed)—3, 14C or 14D.
Strangle weed (dodder)—1, 11, or 8.
Wild mustard—6 and 12. Harrow small grain
fields when growth starts in spring.
Wild onions⁵—3, 13, and 5. Grow small grain,
clover, lespepeza or other close growing crops.
Winterweed (chickweed)—3, 14C or 14D.
Wire grass⁵ (Bermuda)—7 and 13.

METHODS OF CONTROL

1. Clean seed—certified seed has a minimum of weed seeds. Do not plant weed seeds.
2. Good seed bed preparations destroy many weed seeds.

⁵ Perennials (live several years) require continuous control measures until eradicated.

3. Clean cultivation prevents many weed seeds from forming.
4. Crop rotation controls many weeds.
5. Improve fertility:
 - A. Limestone helps crops to crowd out weeds.
 - B. Phosphate helps crops to crowd out weeds.
6. Mowing—mow before or at blooming time.
 Mow higher the first time than the second.
 This will permit cutting below the new branches of plants such as bitterweed.
7. Shading—dense growing crops such as soybeans, velvetbeans, crotalaria, shade out many weeds and grasses.
8. Grazing close with livestock kills underground storage weeds.
9. Hogging is helpful where underground nuts or tubers are present.
10. Smothering small patches with straw, old hay or brush.
11. Burning is sometimes necessary before weed seed mature.
12. Roguing scattered weeds by hand.
13. Exposure to winter cold by shallow plowing in late summer.
14. Chemicals—sodium chlorate is a fire hazard:
 - A. $1\frac{1}{2}$ lb. of calcium chlorate per gallon of water sprayed on foliage.
 - B. 1 lb. of sodium chlorate per gallon of water. Spray on the foliage before bloom stage. Apply enough (1 to $1\frac{1}{2}$ gal. per sq. yd.) to thoroughly moisten the vegetation. Repeat when new growth starts. Two to three treatments are usually required.

CAUTION: Sodium chlorate on clothes or other organic material ignites easily and burns rapidly. Never allow to dry on clothing or drop any of this material around buildings. Wash person, clothing, and materials thoroughly as soon as the job is finished.

 - C. Ammonium sulfate broadcast when the plants are wet.
 - D. Spray with a saturated solution of copperas (iron sulfate) in early spring when in lawns, peas, strawberries, grain, etc.

CROSS-INOCULATION OF LEGUMES

[Crops listed in each group are inoculated by bacteria from each other.]

Group I.—Alsike clover, crimson clover, red clover, white clover, low hop clover, rabbit-foot clover.

- Group II.—Alyce clover, cowpeas, crotalaria, lespedeza, kudzu, partridge peas, peanuts.
 Group III.—Austrian winter peas, Canada field peas, garden peas, vetch.
 Group IV.—Alfalfa, black medic, bur-clover, sweetclover.
 Group V.—Garden beans.
 Group VI.—Soybeans.

SYMPTOMS OF HUNGER SIGNS IN PLANTS

When crops are grown on soils extremely deficient in any essential plant food element, they often show certain characteristic symptoms. Some of these are listed below.

Nitrogen deficiency.—A yellow to pale green color and drying up or firing of bottom leaves. The firing starts at the tip of the bottom leaves and proceeds down the center or midrib of the leaf in plants like corn, leaving the outside portion still green.

In more severe cases, firing progresses up the stalk. If symptoms appear before corn tassels, no ears or only small nubbins form. A distinctly slow and dwarfed growth.

Phosphorous deficiency.—Symptoms general over the plant. Slow growth or late maturity. Small, round stalk in case of corn. Purplish bronze leaves and stems. Abnormally dark bluish green color. Very small amount of grain or fruit to the amount of stalk growth.

Potassium deficiency.—Leaves scorched or burned on margins and tips. These dead areas may fall out, leaving green centers and ragged-edged leaves in case of tobacco, cotton, or soybeans. Leaves thicker and curl down. Often worse in wetter portions of field. Later scorching progresses up the stalk. Premature loss of leaves on cotton, etc. Corn, small grain, etc. fall down due to weak stalks or the lack of root development. Small poorly opened bolls of cotton. Rusty leaves on tobacco, etc. Shortened internodes and tapered ears on corn in severe cases.

Magnesium deficiency.—Symptoms usually on lower leaves first. Veins remain fairly green. Marginal areas become yellow (soybeans, cotton, and tobacco) leaves thin and papery, not curled. Cotton leaves turn purplish-red between green veins late in season. Crotalaria sensitive to lack of magnesium.

Boron deficiency.—ALFALFA—Yellowing of leaves at top of plant or near other terminal points; often some reddening buds die and few blossoms. Short, stunted plants. Worse during dry periods.

SWEETPOTATOES—Cracking of potatoes.

Manganese deficiency.—Bright yellow leaves (soybeans) with dark green veins—usually worse on new leaves. Entire leaf area affected uniformly; no tip or marginal concentration.

CORN—Yellow stripes with green veins. Very young leaves yellow with scattered green specks. Usually found where heavy rates of lime have been added.

THE FUNCTION OF PLANT NUTRIENTS

NITROGEN:

- Imparts dark green color to plants.
- Promotes increased leaf and stem growth.
- Produces crisp improved quality of leaf crops.
- Produces rapid early growth.
- Excessive amounts may delay maturity.

PHOSPHORIC ACID:

- Stimulates early root formation and growth.
- Gives rapid and vigorous start to plants.
- Hastens maturity of crops.
- Especially important in seed formation.
- Increases the ratio of grain and fruit to stalk.
- Winter hardiness of fall-seeded grains and hays.

POTASH:

- Imparts increased vigor and disease resistance to plants.
- Produces strong stiff stalks.
- Increases plumpness of grains and seed.
- Essential in the formation and transfer of starches and sugars.

CALCIUM:

- Promotes early root formation and growth.
- Improves plant vigor and stiffness of straw.
- Regulates uptake of other plant foods.
- Neutralizes poisons produced in the plant.
- Encourages grain and seed production.

MAGNESIUM:

- Aids in maintaining dark green color of leaves.
- Regulates uptake of other plant foods.
- Acts as carrier of phosphoric acid in the plant.
- Promotes the formation of oils and fats.
- Plays a part in the translocation of starch.

SULFUR:

- Gives increased root growth.
- Helps maintain dark green color.
- Promotes nodule formation on leaves.
- Stimulates seed production.
- Encourages more vigorous plant growth.

Table 5.—TEMPORARY GRAZING SCHEDULE TO SUPPLEMENT A PERMANENT GRASS-LEGUME PASTURE

Crop or mixture	Seeding	Variety	Date of Seeding			APPROXIMATE GRAZING PERIOD											
			C. P.	Pied.	Mts.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Rye or.....	2 bu.....	Abruzzi or Balbo.....	Sept. 1-15	Aug. 20-31	Aug. 20-31												
Barley.....	3 bu.....	Iredell or Randolph.....	Nov. 1-15	Oct. 10-31	Sept. 25-Oct. 10												
Wheat.....	2-2½ bu.....	C. P. and Pied. Carala or Red-hart; Mts., Fulcaster and Leaps	Nov. 1-15	Oct. 10-31	Sept. 25-Oct. 10												
Oats.....	2 bu.....	Fulgrain or Fulghum.....	Sept. 1-15	Aug. 20-31	Aug. 20-31												
Wheat.....	1 bu.....	Same as above.....	Sept. 1-15	Aug. 20-31	Aug. 20-31												
Crimson clover.....	20 lbs.....	Southern-grown.....	Sept. 1-15	Aug. 20-31	Aug. 20-31												
Barley.....	1 bu.....	Iredell or Randolph.....	Sept. 1-15	Aug. 20-31	Aug. 20-31												
Rye.....	1 bu.....	Abruzzi or Balbo.....	Sept. 1-15	Aug. 20-31	Aug. 20-31												
Crimson clover.....	20-30 lbs.....	Southern-grown.....	Sept. 1-15	Aug. 15-30	July 15-Sept. 1												
Ryegrass.....	15 lb.....	Italian.....	Sept. 1-15	Aug. 15-30	July 15-Sept. 1												
Crimson clover.....	15 lb.....	Southern-grown.....	Sept. 1-15	Aug. 15-30	July 15-Sept. 1												
Sudangrass.....	30-35 lbs. broadcast or 15 lb. in 2-foot rows		Apr. 25-June 1	May 1-July 1	May 20-June 10												
Soybeans.....	2 bu. brdest. or 1 bu. rows	Tokio, Biloxi Ogden, etc.....	Apr. 15-July 1	Apr. 15-July 1	May 15-June 15												
Lespedeza.....	25-40 lb	Korean or Kobe.....	Feb. 1-Mar. 15	Feb. 15-Mar. 15	Mar. 15-Apr. 15												
Kudzu.....	2 or 3 year old crowns (rooted sections of the vines)	planted in late winter															
Corn and velvetbeans.....	Plant velvetbeans in corn at time of planting																
Corn and soybeans or cowpeas.....	Plant soybeans or cowpeas at time of planting. Corn is laid by.																

Intermittent. Do not overgraze prior to frost.

KEY TO IDENTIFICATION OF PRINCIPAL SOILS OF NORTH CAROLINA MOUNTAIN AREA

Relief	Drainage		Color, consistence, texture		Soil series
	Surface	Internal	Topsoil	Subsoil	
Steep	Excellent	Very good	Brown loam	Brown mellow loam	Porters
Steep	Excellent	Very good	Gray-brown (sandy) loam	Yellow friable (gritty) loam	Ashe
Hilly	Excellent	Good	Brown heavy loam	Brown-red slightly sticky clay	Clifton
Hilly	Excellent	Good	Light brown loam	Light red stiff but brittle clay	Hayesville
Hilly	Excellent	Good	Gray-brown loam	Red-yellow brittle clay or sandy clay	Halewood
Hilly-steep	Excellent	Fair	Light brown silt loam	Light red silty clay	Talladega
Rolling	Good	Good	Brown loam	Brown mellow loam	Tusquitee

PIEDMONT

Rolling	Very good	Good	Brown-gray sandy loam	Red, stiff but brittle clay	Cecil
Rolling-hilly	Excellent	Good	Red clay loam	Red, stiff but brittle clay	Cecil
Rolling	Very good	Good	Gray sandy loam	Yellow-red moderately stiff brittle clay	Appling
Rolling	Good	Very good	Light gray sandy loam	Yellow moderately friable clay	Durham
Rolling	Good	Good	Red-brown clay loam	Dark red clay	Davidson
Undulating	Fair	Poor	Grayish brown loam	Yellow-brown heavy plastic clay	Iredell
Hilly	Excessive	Fair	Gray sandy loam	Quite variable, shallow	Wilkes
Rolling	Good	Good	Red silty clay loam	Red smooth silty clay	Georgeville
Undulating	Fair	Good	Gray silt loam	Yellow smooth silty clay loam	Alamance
Rolling	Good	Poor	Brown-red clay loam	Vari-colored plastic clay	White Store
Undulating	Fair-good	Very good	Light gray sandy loam	Yellow friable (sandy) clay (loam)	Granville
Rolling-hilly	Very good	Good	Gray-brown sandy loam	Purplish-red friable clay	Madison
Flat-undulating	Poor	Poor	Gray sandy loam	Light gray sandy clay	Worsham

KEY TO IDENTIFICATION OF PRINCIPAL SOILS OF NORTH CAROLINA COASTAL PLAIN

Relief	Drainage		Color, consistence, texture		Soil series
	Surface	Internal	Topsoil	Subsoil	
Undulating	Good	Good	Medium gray sandy loam	Yellow friable sandy clay	Norfolk
Undulating	Good	Excessive	Medium gray sand	Yellow loose sand	Norfolk
Rolling	Very good	Good	Brown-gray sandy loam	Brown to reddish brown sandy clay	Ruston
Level	Good	Good	Brown-gray fine sandy loam	Dusky brown fine sandy clay	Marlboro
Rolling	Very good	Fair-poor	Brown-gray fine sandy loam	Brown to red and brown plastic clay	Shubuta
Near-level	Fair-good	Imperfect	Medium gray fine sandy loam	Yellow to mottled heavy tough clay	Craven
Level	Fair	Poor	Medium gray fine sandy loam	Mottled yellow, gray and red plastic clay	Lenoir
Near-flat	Fair	Fair	Dark gray fine sandy loam	Yellow and light gray heavy sandy clay	Dunbar
Flat	Fair	Fair	Dark gray fine sandy loam	Yellow and light gray loose sandy loam	Lynchburg
Flat	Poor	Very poor	Dark gray silt loam	Mottled gray and yellow plastic clay	Coxville
Flat	Poor	Very poor	Dark gray silt loam	Gray and brown smooth plastic clay	Bladen
Depressed	Very poor	Poor	Very dark gray loam	Mottled gray and yellow friable sandy clay	Portsmouth
Rolling	Very good	Good	Gray sandy loam (C. P.)	Red clays (Piedmont material)	Bradley
Rolling	Very good	Good	Gray sandy loam (C. P.)	Yellowish clays (Piedmont material)	Chesterfield

TERRACES AND BOTTOMLAND ALONG STREAMS OF MOUNTAIN, PIEDMONT, UPPER COASTAL PLAIN AREAS

Terrace	Good	Good	Brown mellow loam	Brown-red stiff but brittle clay	Wickham
Terrace-low terrace	Good	Good	Gray fine sandy loam	Yellow friable to moderately heavy clay	Altavista
Low terrace	Good	Good	Brown mellow loam	Yellow-brown friable clay loam	State
Terrace-low terrace	Fair	Fair-poor	Dark gray silt loam	Yellow mottled with gray silty clay	Rankin
Terrace-low terrace	Poor	Very poor	Dark gray silt loam	Gray and brown tough plastic clay	Roanoke
Bottomland	Fair	Good	Light brown mellow silt loam	Light brown silt or silty clay loam	Congaree
Bottomland	Fair-poor	Poor	Light brown fine sandy loam	Brown grading to mottled gray silt loam	Chewacla
Bottomland	Very poor	Very poor	Gray silt loam	Light gray silty clay loam	Wehadkee

REGULAR PRACTICES

(Continued from inside of front cover)

5. **Small grains.**—\$1.50 per acre for establishing a winter cover crop from seedings of wheat, oats, barley, rye, or mixtures of these crops, made in the fall of 1944 and not harvested for grain.

6. **Summer legumes alone.**—\$1.00 per acre for establishing a summer cover crop from seedings of soybeans (seed not harvested), cowpeas, velvetbeans, crotalaria, or mixture of these legumes. The forage must be turned under and followed by a fall-sown crop or left on the land.

7. **Annual lespedeza.**—\$1.00 per acre for establishing good stand and good growth from lespedeza seeded in the spring of 1945 and not cut for hay. Satisfactory growth must be turned under and followed by a fall-sown crop or left on the land.

8. **Sweetclover.**—\$2.00 per acre for disking or plowing under a satisfactory growth. (If turned in the fall, must be followed by a fall-sown crop.)

9. **Permanent sod.**—\$5.00 per acre for establishing a stand of kudzu or perennial pasture grasses by use of crowns, sprigs or sod.

10. **Mowing pastures.**—50 cents per acre for only one mowing of weeds and other noxious plants on established pasture land; \$1.00 per acre for two or more mowings. Forage may not be removed from the land.

11. **Contour stripcropping.**—\$2.00 per acre for establishing in 1945 alternate strips of row crops and sown, close-drilled, or sod crops. (Prior approval required.)

12. **Contouring row crops.**—\$1.00 per acre. (Prior approval required.)

13. **Contouring drilled crops.**—50 cents per acre. (Prior approval required.)

14. **Open-ditch drainage.**—Constructions or cleaning out of drainage ditches for which proper outlets are provided—8 cents per cubic yard of dirt removed, but not to exceed \$5.00 per 100 linear feet. (Prior approval required.)

15. **Tile drainage.**—\$2.40 per 100 linear feet for installation of field drain tile on farm land. (Prior approval required.)

16. **Sod waterways.**—50 cents per 1,000 square feet for establishing permanent sod waterways.

UNLIMITED PRACTICES

17. **Permanent pasture.**—Seeding an adapted pasture mixture containing at least one grass and a legume—payment will be made on pounds of seed used at specified rates, not to exceed \$6.00 per acre. (Prior approval required.)

18. **Pasture improvement.**—Payment will be made on the basis of pounds of seed used, not to exceed \$4.00 per acre, and will be limited to the kinds of seed and at the rates applicable to Practice No. 17. (Prior approval required.)

19. **Sericea.**—\$4.00 per acre for establishing a good stand of sericea lespedeza for the prevention of water erosion. The equivalent of at least 25 pounds of scarified seed per acre is required.

20. **Winter cover crops.**—Establishment of a winter cover crop in the fall of 1945 from seedings of crimson clover, vetch, Austrian winter peas, annual ryegrass, a mixture consisting solely of these crops, or a full seeding of one or more of these legumes with a small grain nurse crop. Payment will be made on the pounds of seed used at specified rates, not to exceed \$4.00 per acre, except that the payment for ryegrass seeded alone shall not exceed \$2.00 per acre.

21. **Harvesting seeds.**—\$3.50 per acre, not to exceed \$87.50 per farm, will be paid for harvesting seed from a good stand of annual ryegrass, crimson clover, red clover, alsike clover, alfalfa, or vetch, or a mixture of vetch and small grain consisting of at least 25 percent by weight of vetch seed harvested.

22. **Terracing.**—Construction of standard terraces for which proper outlets are provided—90 cents per 100 linear feet. (Prior approval required.)